

AGRICULTURAL ENGINEERING NEWS LETTER

AGRICULTURAL EXTENSION DIVISION
UNIVERSITY OF MINNESOTA

UNIVERSITY FARM, ST. PAUL—FEBRUARY 15, 1940—No. 95

TILLAGE EQUIPMENT FOR WEED CONTROL

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Weed control is one of the farmer's most important problems. Two principal methods of handling the situation are prevention and cure. The first of these consists in following practices that will prevent weed seeds or roots from being planted or spread. Planting weed-free seed is an important part of this program. Cure consists of controlling and eradicating weeds that are growing. The farmer is concerned with both methods but should always remember that "an ounce of prevention is worth a pound of cure." Control and eradication may be effected by various methods, including the use of chemicals and tillage. This discussion will deal only with tillage methods and practices.

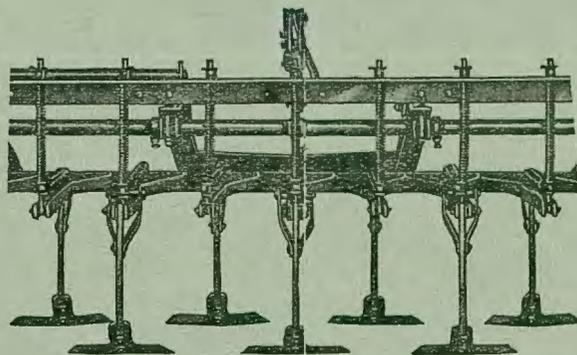
Although many soil tillage operations are primarily for the purpose of improving soil tilth and burying manure, straw, or stubble, most of them, at the same time and in some way, also function as weed control measures. A number of operations, however, are performed primarily to control weeds.

The Field Cultivator

The field cultivator is one of the most important machines for weed control. It is strongly built for use with either tractor or horses and for operating at considerable depths. To the beams may be attached either spring teeth or stiff shanks at the base of which shovels of various styles may be fastened. The shank is usually held in a vertical position by means of a stiff spring. This permits the shovel to move out of the way when a stone or some other obstruction is encountered, and then pulls it back into its proper position. Such weeds as quack grass can be handled most effectively with a springtooth, while others, such as field bindweed, leafy spurge, and thistles require a duckfoot shovel on a stiff shank for most effective results; hence, the field cultivator, on which both of these types of tillage members may be used, fits well into a general weed control program.

The Tractor Cultivator

Many tractor farms have a row-crop cultivator. The possibilities of using this as a field cultivator for fallowing have not been generally realized. When it is to be used as a field cultivator, soil tillage members are inserted in the space



Section of Field Cultivator Equipped with Duckfoot Shovels

normally left blank for the cultivation of row crops. The expense of equipping such a cultivator for fallowing is nominal. With a two-row cultivator the working width would be 7 feet which is about equal to the width of the small-size field cultivator sold by most manufacturers for use with the two-plow tractor. To use the row-crop cultivator for fallowing throughout the season necessitates attaching it to the tractor and removing it again many times if the tractor is also used for other regular farm work. A cultivator that can be attached and detached without much trouble or consumption of time is desirable.

Controlling Field Bindweed by Tillage

The length of fallowing period adopted and the use of competitive fall and summer crops will vary with conditions. This should be carefully worked out with a weed specialist or the county agricultural agent. Field bindweed is now demanding the attention of many farmers. Those who have studied control methods state that the root system which extends deeply into the ground must be exhausted. This is accomplished by cutting off the growth about two weeks after the plants emerge during the fallowing season. Recommended practice consists of fallowing with duckfoot shovels, after plowing to a depth of 4 to 5 inches. Cultivations should then be made at about the same depth so that the cultivator shovels will have the advantage of the firm soil beneath the plowed layer in shearing off the stem of the field bindweed. Where there is considerable trash in the upper layer of soil, there may be some difficulty from clogging the first time or two over with the cultivator. This difficulty will

rapidly decrease. It is essential that the job be done thoroughly each time, and one should make sure that no unworked areas remain between strips covered with the cultivator.

Importance of Proper Machine Care and Adjustment

It is important that the field cultivator be properly equipped for most effective handling of bindweed. The shovels are usually arranged in two rows across the cultivator. It is desirable to have the front row as far ahead of the rear row as possible. The greater this distance, the less will be the likelihood of clogging. Duckfoot shovels are available in various widths ranging from 6 to 14 or 16 inches. They should be of such width that those in the rear row cover not only the entire strip left between blades in the front row but actually overlap these strips about 2 or 3 inches on each side in order to prevent the possibility of any of the stems escaping uncut. As the blades wear, this overlap becomes less. New shovels must, therefore, be used as soon as the ends have worn back so far that the overlap is too small to be effective. To keep the shovels following their proper course, it is important that worn or damaged parts be replaced or repaired when necessary to prevent the beam from swinging sideways.

Considerable power is always required to operate a field cultivator at the desired depths. Use of unnecessary power means needless expense. The shovels should be so adjusted that all of them will penetrate to the same depth. This can be done best when the cultivator is resting on a level floor. To obtain penetration the points should be set to travel somewhat lower than the wings when in operating position. The pitch at which the shovel is set, however, should be no greater than necessary because the power requirement increases as the pitch increases. For most effective and efficient results it is necessary that the shovels be kept sharp. When not in use, they should be thoroughly covered with grease to prevent them from rusting and to keep them in condition to scour properly. Field bindweed and leafy spurge can be controlled most effectively by fallowing with duckfoot shovels. Proper equipment kept in condition to do first class work is economical.